

**REMARKS**

Review and reconsideration of the Office Action of April 6, 2005 is respectfully requested.

An explanation of claim amendments follows.

Previously, Applicant had attempted to amend the material system claims to make clear that Applicant was claiming two separate ingredients:

(a) solvent, and

(b) particles of binder soluble in the solvent, and optionally filler.

It was urged that, since the binder particles are soluble in the solvent, if the particles and solvent were in the form of a mixture, then the particles would be dissolved and, accordingly, there would be no particles. Accordingly, the only way to read the claim is with the understanding that the binder particles and solvent are separate.

In the present Office Action, it remains the position of the Examiner that the material system claims read on a mixture (two components in a mixed state). Based on this understanding of the claims, currently Claims 14-27 (even process claims requiring depositing particles and thereafter selectively wetting them with solvent) are rejected.

In response, Applicant herewith carefully further revises the claims for clarity, and submit that these claims as amended can no longer be interpreted as claiming a mixture.

First, the main claims now recite that the binder particles are dry and that the solvent is liquid. While these terms do

not expressly appear in the specification, the state of these materials is inherent: particles are inherently solid, and a solvent is inherently liquid. If the binder particles were dissolved in the solvent, they would not be solid, thus must be dry as apparent from the entire specification.

Second, all claims recite, in the preamble, "for use in 3D-printing". This term gives life and meaning to the claim, at least to the extent of requiring dry particles to be a separate component from the liquid solvent so as to be able to be used in a 3D printing process. 3D-printing cannot possibly be carried out if binder particles soluble in solvent are already dissolved in the solvent. This is an impossibility.

3D-printing is accomplished by

- providing a layer of loose dry particles,
- printing solvent onto the particles to fuse the particles in the printed area,
- repeating these steps until a three dimensional solidified shape of bonded particles is built up,
- removing the loose dry particles - particles which had not been printed with solvent - leaving a 3D-shape which can be used, e.g., as a mold.

Accordingly, 3D printing requires two separate components - a dry particles, which can be deposited in a layer, and a liquid solvent, which can be applied in a pattern to the layer (e.g., using an ink-jet type printer head) to activate the binder and form a solid pattern.

Since it is necessary to resolve the issue of claim construction before meaningful progress can be made in the prosecution of the application, Applicant files herewith a Request for Telephone Interview.

**Office Action**

Turning now to the Office Action in greater detail, the paragraphing of the Examiner is adopted.

**New Rejection - 35 U.S.C. §102**

Claims 14-27 are rejected under 35 U.S.C. §102(e) as being anticipated by a newly cited reference - US 6,743,521 (Hubbell et al).

Hubbell et al teach a coating for rendering a surface non-adhesive to cells or tissue. The Examiner considers these coating materials to be "**suitable for 3D printing.**"

Applicant respectfully traverses. This new rejection is not understood.

The materials are not in the form of particles and solvent, and the person of ordinary skill working in the art of 3D printing would have no idea how to use such materials for 3D printing. How can the material of Hubbell et al be used to form a 3D shape such as a mold?

Hubbell et al do not have any disclosure relevant to 3D printing. Instead, they disclose tissue coatings for medical devices useful in inhibiting formation of post-surgical adhesions (see summary).

Hubell et al do not say anything about particles or about binders.

It is noted that Hubell et al do disclose multilayer compositions of alternating layers of polycationic and polyanionic materials, i.e. complementary polyelectrolytes that are NOT contained separately.

In the present invention, the separation of the complementary polyelectrolytes is essential: otherwise, the particles would stick together, and 3D printing would not be possible. According to the present invention, 3D printing involves application of solvent on the particles to wet them only there where wetting is wanted, and destroys there the separation of the complementary polyelectrolytes, allowing them to bind strongly together. This feature of the present invention is not disclosed in the prior art.

The claims have been further amended for clarity.

Accordingly, withdrawal of the rejection is respectfully requested.

#### **Maintaining Rejections of Record**

The Examiner rejects Claims 20 and 21 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

The Examiner had asked how the particle size and shape can be defined in the claims, since "the compositions are claimed as comprising binder and a solvent for the binder. It is not seen

how particles will exist in solution."

In response, Applicant submits that the Examiner's reasoning here leads directly to the conclusion that the claims cannot be read as proposed by the Examiner, and must be read as defining a material system for 3D printing, which system requires two separate components - liquid solvent, and dry particles. To read the claims as claiming a mixture makes no sense.

Finally, the Examiner indicates that the rejections based on Lent et al, Salvin et al, and Fanger et al are maintained for reasons of record.

According to the Examiner, "The claims read on a single composition of matter comprising two components in a mixed state."

Applicant traverses the Examiner's interpretation of the claims. It is respectfully submitted that the claims, at least in their present form, clearly define separate components in the manner of a kit claim, namely, liquid solvent and dry particles comprised of binder.

It is respectfully requested that, if the present claims are not in condition for allowance, a Telephone Interview be granted in order to discuss claim construction and to discuss language that may satisfy the Examiner.

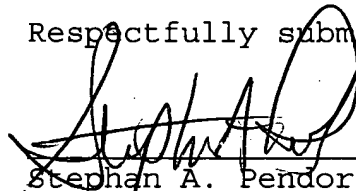
Withdrawal of the rejection is respectfully requested.

U.S. Application No. 09/870,286  
AMENDMENT D

Attorney Docket: 3926.029

Favorable consideration and early issuance of the Notice of Allowance are respectfully requested. Should further issues remain prior to allowance, the Examiner is respectfully requested to contact the undersigned at the indicated telephone number.

Respectfully submitted,



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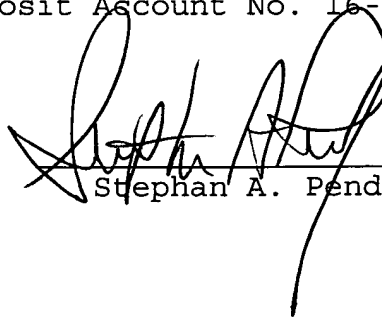
PENDORF & CUTLIFF  
5111 Memorial Highway  
Tampa, FL 33634-7356

Date: July 6, 2005

**CERTIFICATION OF MAILING AND AUTHORIZATION TO CHARGE**

I hereby certify that a copy of the foregoing AMENDMENT C for U.S. Application No.: 09/870,286 filed May 30, 2001, was deposited in first class U.S. mail, with sufficient postage, addressed: ATTN: Mail Stop: **Amendment**, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on **July 6, 2005**.

The Commissioner is hereby authorized to charge any additional fees, which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account No. 16-0877.



Stephan A. Pendorf